



CHAPTER 12

Novell NetWare Support for Dell PowerVault 65xF Storage Systems

This chapter provides instructions for connecting Dell PowerVault 650F and 651F storage systems to a Dell PowerEdge or Compaq server system running the Novell NetWare operating system. All procedures in this document require administrator access permissions.

This chapter describes a NetWare configuration that requires that Managed Node for NetWare be installed on at least one of the NetWare servers (see Figure 2-2).

This chapter describes the following procedures:

- Cabling the NetWare system to the storage area network (SAN)
- Updating the QLogic host bus adapter (HBA) basic input/output system (BIOS) and nonvolatile random-access memory (NVRAM)
- Installing the QLogic drivers on the NetWare system
- Installing, Configuring, and Uninstalling Data Managed Node for NetWare
- Dell OpenManage ATF for NetWare
- Creating partitions and volumes on the NetWare hard-disk drives



NOTE: To install the Windows NT or Windows 2000-based Data Management software, see Chapter 11, "Installing, Configuring, and Removing Microsoft Windows SAN Software Components."

Cabling NetWare Systems to the PowerVault System

Perform the following steps to cable NetWare systems to the PowerVault storage system:

1. Turn off the PowerEdge server(s) and the PowerVault 65xF storage systems.

NOTICE: Do not turn on the PowerEdge or Compaq server(s) or the PowerVault 65xF storage systems until all cabling is complete.

2. To connect an interface between the 5xF Fibre Channel switch and each of the NetWare servers that you want to install on the SAN (see Figure 12-1), perform the following steps:
 - a. Connect the high-speed serial data connector (HSSDC) of the interface cable to the QLogic HBAs on each system.
 - b. Connect the other end of the cable to the 5xF Fibre Channel switch.
3. To connect an interface between each of the storage processors (SPs) on the 65xF storage systems and the 5xF Fibre Channel switch, perform the following steps:
 - a. Connect the HSSDC to the switch on each cable.
 - b. Connect the DB-9 connector to one of the 9-pin connectors on the SP modules.
4. Verify the connection between the NetWare system and a Windows NT or Windows 2000 management station on the local area network (LAN).
5. Power on all Fibre Channel switches and PowerVault storage systems.

This step takes 3–5 minutes and ensures that the PowerVault storage systems are completely booted.
6. Power on the server(s).
7. Complete any switch zoning before continuing.

Updating the QLogic HBA BIOS and NVRAM

Before you connect a Dell PowerVault 65xF system to your PowerEdge or Compaq system running NetWare, you must update the BIOS and the NVRAM on your system's QLogic HBAs.

For support of a NetWare Configuration on a SAN with more than eight logical unit numbers (LUNs), the QLogic BIOS settings must be updated as follows:

1. Turn on or reboot the server.
2. When the QLogic BIOS message appears during the power-on self-test (POST), press <Alt><q>.

If the server has more than one controller installed, the **Select Host Adapter** screen is displayed with a list showing each installed controller and the corresponding address. If the server has only one controller, the **Controller** screen is displayed with a list of the options for the selected controller.

3. If the **Select Host Adapter** screen is displayed, press the up- or down-arrow key to highlight the controller you want and press <Enter>.

The **Controller** screen is displayed with a list of options for the selected controller.

4. Press the up- or down-arrow key to highlight **Configuration settings** and press <Enter>.

The **Configuration Settings** screen is displayed.

5. Press the up- or down-arrow key to highlight **Advanced Adapter Settings** and press <Enter>.

The **Advanced Adapter Settings** screen is displayed.

6. Press the up- or down-arrow key to highlight **Luns per Target** and press <Enter>.

The **Luns per Target** screen is displayed.



*NOTE: You must set the range of the LUNs to the minimum range that applies to the number of LUNs on the SP. Setting the **LUNs per Target** value to a higher value affects the time required for the server to boot. The maximum supported setting is 32. For larger numbers of LUNs, Dell recommends having at least 256 MB of random-access memory (RAM) in the server.*

7. Type the desired value and press <Enter>.

The **Advanced Adapter Settings** screen is displayed, and the **Luns per Target** value is set correctly.

8. Press <Esc> twice, select **File—> Save Changes**, and press <Enter>.
9. Repeat steps 1 through 8 for each installed adapter and for each server.

For instructions on updating the QLogic HBA BIOS and NVRAM, see Chapter 4, "Installing the Host Bus Adapter in the Server."

Installing QLogic Drivers on the NetWare Server

For instructions on installing the drivers for the QLogic HBA in your NetWare server, see Chapter 4, "Installing the Host Bus Adapter in the Server."

Installing, Configuring, and Uninstalling Data Managed Node for NetWare

Data Managed Node for NetWare must be installed on one of the NetWare servers.



NOTE: The NetWare configuration specified in Figure 2-2 requires that a LUN is bound on an SP in order for the Data Managed Node for Netware to communicate with the SP. If there are no LUNs bound, then a Windows NT or Windows 2000 system attached directly to the SP is required to configure and initialize a LUN. Following this, the Windows NT or Windows 2000 server can be removed and management can occur through the NetWare server.

Installing and Configuring Data Managed Node for NetWare

To install and configure the Data Managed Node for NetWare, perform the following steps.



NOTE: Because long filename support may not have been enabled on the NetWare server, the agent installation uses the 8.3 file format.

1. If a previous version of Managed Node is running, it must be stopped and uninstalled using the uninstall commands in the next section.
2. On a client system running Microsoft Windows or DOS, insert the Managed Node installation CD in the CD-ROM drive.
3. On the client system, map drive letter H to the **sys** volume on your NetWare server.
4. At the DOS prompt of the client system, change the directory to the drive containing the installation CD and run the install script by typing `install <drive>`, where *drive* is the remote drive corresponding to the **sys** volume on the NetWare server.

For example, `install H:` would create **h:\dell\om** with the appropriate agent and command line interface (CLI) directories under it.

5. Edit the **sys:\etc\hosts** file by adding the Internet Protocol (IP) address of the server, followed by localhost.

For example, type
`192.10.10.16 localhost.`

6. If you do not wish to maintain individual host files, edit the **sys:\resolve.cfg** file by adding the IP addresses and names of your domain name system (DNS) servers.

NOTICE: The agent will not start successfully if the DNS server is down, and start-up of the agent could cause unpredictable server behavior.

7. Edit the **sys:\dell\om\agent\agent.cfg** file.
 - In the User Specification section, add user `admin_user_name@Netware-servername` where *admin_user_name* is the administrator account and *Netwareservername* is the name of your NetWare server. For example, type `user admin@barbados`.
 - If you intend to use any Windows NT or Windows 2000 Data Managed Node applications on the client, also specify user `NT_login_name@client_name`.
 - You must specify the device name. The NetWare device names are in the same format as the device displayed on the NetWare server when **load monitor** is run and **Disk information** is selected. The device name is in the format `V591-A1-D1:0`, where *V* is the vendor, *A* is the adaptor, *D* is the bus ID, and *0* is the disk LUN. These values are assigned by NetWare.
8. To start the agent on the NetWare server, type the following command on the NetWare console and press <Enter>:

```
load sys:\dell\om\agent\omagent -f sys:\dell\om\agent\agent.cfg
```

9. To unload the agent, type the following command on the NetWare console and press <Enter>.

```
unload omagent
```

10. To have the agent automatically start up at NetWare server start-up, perform the following steps on the NetWare console:

- a. Type `Load Edit AUTOEXEC.NCF` and press <Enter>.

NOTICES: For volumes to be accessed by a NetWare server, the server must mount them. You can mount them by issuing the Mount command; however, most administrators place it in the autoexec.ncf file. After NetWare installation, the Mount all command is placed in the autoexec.ncf file by default. The administrator must remove this command and replace it with a series of Mount commands explicitly mounting the volumes on the SAN that should be available to the server.

If you are using Novell Storage Services (NSS) volumes in your SAN, you must edit each system's autoexec.ncf file. In this file, find the command `load nss.nlm` and change it to `load nss.nlm.zlss`. This command prevents the NSS manager from mounting all NSS volumes attached to the SAN.

- b. Append the load command from step 8 to the end of the file.
- c. Press <Esc> and save the file.
- d. Exit the program.

Uninstalling Data Managed Node for NetWare

To uninstall the Data Managed Node for NetWare, perform the following steps:

1. From the NetWare server console, stop the agent by using the **unload omagent** command.
2. From a DOS prompt on the client system, type the following commands and press <Enter>.

```
cd <drive>:\dell\om (where drive is the remote drive corresponding to the  
sys volume on the NetWare server)
```

```
remove
```

This step removes the **om** directory and all its contents. It does not remove the Dell directory.

3. Remove the entries from the **Autoexec.ncf** file that are loading the agent program. To remove the entries, perform the following steps:

- a. At the system console, type `load edit autoexec.ncf`.
- b. Locate and remove the following line:

```
sys:\dell\om\agent-f sys:dell\om\agent\agent.cfg
```

- c. Press <Esc> to save the changes and exit.

Dell OpenManage ATF for NetWare

Dell OpenManage Application Transparent Failover (ATF) is a software product that works with Dell PowerVault 650F and 651F disk processor enclosure (DPE) storage systems to let applications continue running after the failure of an SP, HBA, or cable. Without human intervention, ATF can route input/output (I/O) through a secondary path to the disk units the applications need.

Installing Dell OpenManage ATF for NetWare

To install Dell OpenManage ATF for NetWare, perform the following steps:

1. Create a SCSI SAN High Availability Driver for NetWare diskette.
2. Install the SCSI SAN High Availability Driver.
3. Install the High Availability Device Manager (HADMD) Utility.



NOTE: The drivers for the Novell NetWare operating system are located on the Dell PowerVault Fibre Channel Utilities CD. Before installation you must create a diskette with the files needed to install ATF for Netware.

Create a SCSISAN High Availability Driver for NetWare Diskette

To create the diskette, perform the following steps:

1. Insert the *Dell PowerVault Fibre Channel Utilities CD* into your computer's CD-ROM drive.
2. Insert a blank formatted diskette into the diskette drive.
3. Navigate through the HTML pages to **ATF for Netware**.
4. Click **Create SCSISAN High Availability Driver for Netware Diskette**.
Follow this link to create a diskette with the needed Dell OpenManage ATF for Netware files.
5. Follow the instructions on the screen to complete creating the diskette image.

Installing the SCSISAN High Availability Driver.

To install the SCSISAN High Availability Driver, perform the following steps:

1. If a previous version of Dell OpenManage ATF for Netware is installed, stop it and uninstall it.
2. Turn on or reboot the server.
Allow the server to boot completely.
3. Insert the *SCSISAN High Availability Driver for Netware* diskette that you created in the previous steps into your Netware Server.
4. Start the appropriate NetWare installation program:
 - For NetWare 4.2, type `load install` at the server console prompt.
 - For NetWare 5.x, type `load nwconfig` at the server console prompt.
5. Select **Driver Options**.
6. Select **Configure disk and storage device drivers**.
7. Select **Select an additional driver**.
8. Press <Insert> to select **Install an unlisted driver**.
9. If the *SCSISAN High Availability Driver for NetWare* diskette is in drive A, press <Enter>. If the diskette is not in drive A, press <F3> to enter the correct path to the diskette.
10. Select **Novell SCSISAN NPA Custom Device Module Driver**, and press <Enter>.
11. Select **Yes** at the prompt **Do you want to copy driver scsisan.cdm**.

12. If you are asked to save the existing file **scsisan.cdm** select **No** and press <Enter>.

This message only occurs if you have previously installed this file.

13. If you are asked to save the existing file **scsisan.ddi** select **No** and press <Enter>.

This message only occurs if you had installed this file previously.

14. At the **Specify server boot path** prompt, type the path to **server.exe**, or press <Enter> to accept the default path of **c:\nwserver**.
15. Select **No** at the prompt **Do you want to select an additional Disk driver?**.
16. Select **Return to previous menu** twice.
17. Select **Exit** to exit the installation program.

The installation program makes all necessary additions and changes to the **startup.ncf** file and sets the values appropriately, so you should not need to adjust any driver settings.

Installing the HADM Utility

1. The **hadm.nlm** file is located in the **\ATF\Install\NW\hadm** directory on the *Dell PowerVault Fibre Channel Utilities CD*.
2. Copy the **hadm.nlm** file to a system that is running a NetWare client.
3. Connect and log on to your NetWare server using the system that you just copied the file to.
4. Map a drive letter to the **SYS:** volume on your NetWare server.
5. Create a directory on the **SYS:** volume to store your Dell OpenManage ATF for NetWare files. For this example, we use **\system\Dell\ATF** as the directory name.



*NOTE: Dell OpenManage ATF for NetWare must be installed to a local drive on the NetWare server. If the **SYS:** volume is located on the SAN storage array, Dell OpenManage ATF for NetWare must be installed on a different, locally attached volume.*

6. Copy the Dell OpenManage ATF for NetWare file, **hadm.nlm** to the **\system\Dell\ATF** directory.

For additional information about how to perform an ATF restore, see the *Dell OpenManage ATF for NetWare Operation Guide*. For information about installing ATF in a Windows NT or Windows 2000 system, see Chapter 11, "Installing, Configuring, and Removing Microsoft Windows SAN Software Components."

Creating Partitions and Volumes on the NetWare Hard-Disk Drives

For information about creating partitions and volumes on NetWare hard-disk drives, see your NetWare documentation.

